11/19/91

ADVISEMENT HANDBOOK BIOLOGY

DEPARTMENT MANSFIELD UNIVERSITY

TABLE OF CONTENTS

GENERAL EDUCATION PROGRAM

Core Requirements

English I	- 3 S.H.
English II	- 3 S.H.
Oral Communication	- 3 S.H.
Health and/or P.E.	- 3 S.H.
Fine Arts	- 3 S.H.
	15 S.H.

The Five Basic Groups

I - Humanities (English, History, Honors (100,101), Philosophy).

II - Languages (French, German, Spanish).

III - Sciences (Astronomy, Biology, Chemistry, Geology, Physics).

IV - Mathematics (Math - all courses)

V - Social Sciences (Anthropology, Economics, Geography, Honors 201, Political Science, Psychology, Sociology).

Students should take two courses in four of the five basic groups during the freshman year. During the sophomore year they should take two more courses, or complete 12 semester hours in three of the four basic groups where they have initiated work the previous year. Students bear the responsibility for meeting any specific group requirements as demanded for their eventual majors. Faculty advisors are available and willing to assist students in their selection of course work.

Advising Recommendations:

1. Students must see their Biology Department advisor at least once a semester to pre-register for the next semester. This is an important individual responsibility for each student.

2. Become familiar with your personal Evaluation Record Form and carefully assess what specific courses remain to complete the requirements of your major.

3. At the end of 64 semester hours, students are admitted to the upper division of study. Learn what upper division entrance requirements are listed in your specific academic division or major area of study.

4. Contact the Placement Office during your freshman year to determine career and placement opportunities for various areas of specialization. Such a visit may eliminate many problems during your senior year.

5. If students have any advising questions or problems concerning the General Education program they should contact the Academic Advising Center.

SPECIAL RULES

The following special rules govern the General Education Program:

1. Every student must satisfy the minimum requirements of four out of five "Groups" listed under Distribution Requirements.

2. A student may use only six credits from his/her major discipline to fulfill General Education Distribution Requirements (Groups) and General Education Electives. Professional courses are excluded except under special rule #10.

3. No more than two courses with the same prefix (of three or four credits each) may be used to complete a Group (Distribution Requirements, Group I - V). A maximum of 12 credits with the same prefix is permitted as distribution requirements when including those taken as General Education electives.

4. No more than eighteen (18) credits from approved courses or disciplines from one Group (if Group I, III, or V) may be used to meet Distribution Requirements. This includes the Distribution Groups I, III, V and General Education Electives, for example, twelve (12) credits in Group I from approved courses and six (6) credits from the same discipline used in the General Education elective area is the maximum allowed in the Humanities. In the case of Groups II and IV only twelve (12) credits is permitted.

5. Any specific course, or courses from Disciplines approved for General Education, from the above lists may be used as Distribution Electives.

6. A minimum of 41 credits in Distribution Requirements and Electives is required.

7. Six credits in a single language are required when completing the Foreign Language Group minimum.

8. One Physical Education credit may be earned by registering for HPE 205 after participating in intercollegiate athletics.

9. Physically handicapped students may complete the HPE 101-151 requirement by special arrangement.

10. One Professional Elective is allowed from those approved. However, it must be replaced should the student subsequently choose a major in that field.

11. <u>If Remedial Education, ENG 090, MA 090, and/or ED EL 090 are required, they should be taken the first semester. Three, six or nine hours of courses would be deferred to other semester. The semester hours earned from these courses do not count toward the 128 semester hours needed for graduation.</u>

NEW GENERAL EDUCATION PROGRAM APPROVED COURSES

GROUP I, HUMANITIES
(MINIMUM 9 CREDITS)

ENG 113	HST 102	PHL 202
ENG 205	HST 104	PHL 230
ENG 206	HST 201	PHL 240
ENG 210	HST 202	HON 100
ENG 211	PHL 201	HON 101
HST 101		

GROUP II, FOREIGN LANGUAGES
(MINIMUM 6 CREDITS)

ANY COURSES OFFERED BY THE FOREIGN LANGUAGE DEPARTMENT WILL SATISFY THIS REQUIREMENT.

GROUP III, NATURAL SCIENCES
(MINIMUM 9 CREDITS)

AST 105	BIO 210	GEL 102
AST 106	BIO 220	GEL 121
AST 108	CHM 101	GEL 122
AST 109	CHM 102	PHY 130
AST 110	CHM 103	PHY 151
AST 111	CHM 111	PHY 152
BIO 101	CHM 112	PHY 188
BIO 102	GEL 101	PHY 211

GROUP IV, MATHEMATICS
(MINIMUM 6 CREDITS)

ANY COURSES OFFERED BY THE DEPARTMENT OF MATHEMATICS WILL SATISFY THIS REQUIREMENT.

GROUP V, SOCIAL SCIENCES
(MINIMUM 6 CREDITS)

ANH 101	GEG 111	PSY 101
ANH 102	GEG 222	PSY 210
ECO 101	HON 201	PSY 212
ECO 102	PSC 100	PSY 290
ECO 204	PSC 101	SOC 101
ECO 205	PSC 210	SOC 121
GEG 101	PSC 212	SOC 232
GEG 102		

PROFESSIONAL ELECTIVES

BFC 217	ED 100	SPE 101
BUS 130	HEC 111	SWK 101
CIS 103	RPL 102	TRT 102
CJA 100		

OLD GENERAL EDUCATION PROGRAM APPROVED COURSES

GROUP I, HUMANITIES

ARH 101	ENG 220	PHL 201
ARH 102	ENG 224	PHL 202
ARH 226	ENG 225	PHL 220
ARH 229	ENG 226	PHL 230
ART 201	ENB 232	PHL 240
ART 210	ENG 235	PHL 250
ART 231	ENG 290	PHL 270
ART 241	ENG 291	PHL 280
ART 251	ENG 299	COM 200
ART 271	JN 100	COM 201
ART 281	JN 310	COM 203
ART 295	JN 330	COM 204
ART 345	MUS 100	COM 305
ENG 113	MUS 111	THT 110
ENG 205	MUS 122	THT 202
ENG 206	MUS 123	THT 212
ENG 210	MUS 222	HON 100
ENG 211	MUS 223	HON 101
ENG 213	MUS 224	HON 201

GROUP II, LANGUAGES
FRENCH, GERMAN, SPANISH, ITALIAN

FR, GER, SPAN, ITAL. 101
FR, GER, SPAN, ITAL. 102
FR, GER, SPAN 201
FR, GER, SPAN 202
ADVANCED COURSES BY STUDENT PETITION

GROUP III, SCIENCES

AST 105	BIO 220	GEL 102
AST 106	BIO 240	GEL 121
AST 108	BIO 260	GEL 122
AST 109	CHM 101	PHY 130
AST 110	CHM 102	PHY 151
AST 111	CHM 103	PHY 152
AST 112	CHM 106	PHY 165
BIO 101	CHM 111	PHY 188
BIO 102	CHM 112	PHY 211
BIO 210	GEL 101	PHY 212

GROUP IV, MATHEMATICS

MA 101	MA 111	MA 141
MA 105	MA 130	MA 160
MA 107	MA 140	MA 203
MA 109		

ADVANCED COURSES BY STUDENT PETITION

GROUP V, SOCIAL SCIENCES

ANH 101	HST 102	PSY 240
ANH 102	HST 104	PSY 101
ECO 101	HST 201	PSY 210
ECO 102	HST 202	PSY 311
ECO 204	HST 205	PSY 320
ED 100	HST 210	PSY 321
GEG 101	HST 232	SOC 101
GEG 102	HST 250	SOC 121
GEG 111	PSC 100	SOC 302
GEG 222	PSC 101	SOC 305
RPL 102	PSC 202	SA 321
HST 101	PSC 210	

BIOLOGY DEGREE REQUIREMENTS

I. Biology Course Requirement

Biology majors are required to take:

1. BIO 111 Introduction to Cell Biology
2. BIO 210 General Zoology
3. BIO 220 Botany
4. BIO 310 Ecology or 362 Limnology (Except B.S.M.T.)
5. BIO 404 Biology Seminar (Except B.S.M.T.)

In addition students must take 2 of 3 options.

1. BIO 330 Plant Physiology or
   BIO 332 Physiology (Required B.S.M.T.)
2. BIO 340 Genetics (Required B.S.M.T.)
3. BIO 355 Microbiology (Required B.S.M.T.)

II. Extra - Departmental Course Requirements

A. Chemistry Course Requirements

1. CHEM 111 General Chemistry I
2. CHEM 112 General Chemistry II
3. CHEM 211 Organic Chemistry I (Except B.S. Fisheries)
4. CHEM 212 Organic Chemistry II (Except B.S. Fisheries)
5. CHEM 311 Quantitave Analysis (Required Only of B.S. Fisheries)
6. CHEM 332 Instrumental Analysis (Required Only of B.S. Fisheries)

B. Physics Course Requirements

1. PHY *191 Physics I
2. PHY 192 Physics II

C. Mathematics Course Requirements

1. Option A:
   MA 140 Analytic Geometry and Calculus I
   MA 141 Analytic Geometry and Calculus II

2. Option B:
   MA 105 Introduction to Statistics
   MA 107 Introduction to Computer Programming
   MA 140 Analytic Geometry and Calculus I

In addition to the requirements above, each degree program has specific requirements listed later in this handbook.

* Physics 191, 192 sequence is offered only in academic years which begin with even numbered years e.g. 1988, 1990, etc. Phy 192 is not required of BS MT students.

IV. Courses which Biology Majors MAY NOT take for credit.

1.	BIO	101	Man and the Biological World
2.	BIO	102	Contemporary Biological Problems
3.	BIO	343	Food Microbiology
4.	CHM	101	Inorganic (Home Ec., Liberal Arts excluding Science majors)
5.	CHM	102	Organic and Biochemistry (Home Ec., Liberal Arts excluding Science majors)
6.	CHM	103	Environmental Chemistry
7.	PHY	151	Conceptual Physics I
8.	PHY	152	Conceptual Physics II
9.	PHY	170	Introduction to Electronic Apparatus
10.	MA	101	Fundamental Concepts in Mathematics

PASS - FAIL POLICY

1. No courses in any major offered by the Biology Department may be taken as a pass-fail option.

2. Eight courses may be taken under the pass/fail option over the total of four years. A student may take no more than one course pass/fail each semester.

3. No 100 or 200 level courses taken in fulfillment of General Education Core, Requirements, or electives may be taken pass/fail.

4. Any 100 or 200 level course may be taken pass/fail but will count only as a free elective.

5. Information that any 100 or 200 level course taken pass/fail will count only as a free elective should be included on the pass/fail option card.

6. Courses required by the major department may only be included in the pass/fail option at the discretion of the department.

7. Pass grades will be "D" or better, and three failures under the option will constitute a loss of the option. Pass/fail courses are not reflected in the quality point average of the student, but will be counted as semester hours earned if a passing grade is received. The student has a two week period at the beginning of the semester to elect to take a course pass/fail. He/She may not change the pass/fail option to a letter grade or select the pass/fail option after the two week add period has passed.

8. None of the following courses may be taken as a pass/fail option.

CHM	111	General Chemistry I
CHM	112	General Chemistry II
CHM	211	Organic Chemistry I
CHM	212	Organic Chemistry II
PHY	191	Physics I
PHY	192	Physics II
MA	140	Analytic Geometry and Calculus I
MA	141	Analytic Geometry and Calculus II
MA	105	Introductory Statistics
MA	107	Introduction to Computer Programming
ENG	090	Writing Skills (University-wide policy)
ENG	112	Composition I (University-wide policy)
ENG	313	Composition II (University-wide policy)

26.0101

BIOLOGY B.A.
(eff. S-87)

EVALUATION RECORD

NAME

SOC. SEC. NO. DATE ADMITTED

	SH	GRADE	QP	DATE
Ele 090 Basic Rdg/Stdy	3			
Eng 090 Basic Writing	3			
Ma 090 General Mathematics	3			

GENERAL EDUCATION

COMMUNICATION SKILLS (total 9 SH)

Com 101 Oral Communication	3			
Eng 112 Composition I	3			
Eng 313 Composition II (Min. C)	3			

HEALTH/PHYSICAL EDUCATION (total 3 SH)

HPE 100 Health	2			
HPE 101-151	1			
HPE 101-151	1			
HPE 101-151	1			

FINE ARTS (total 3 SH)

ArH 101 Intro to Art	3			
Mus 100 Intro to Music	3			
Tht 110 Intro to Theatre	3			

DISTRIBUTION REQUIREMENTS (min. 42 SH in 4 Group & Elect.)

GROUP 1 HUMANITIES (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

GROUP 2 FOREIGN LANGUAGES

(min. 6 SH one lang./max. 12 SH)

GROUP 3 NATURAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

Bio 220 Botany	4			
Chm 111 Gen'l Chem I	4			
Chm 112 Gen'l Chem II	4			

GROUP 4 MATHEMATICS (min. 6 SH/max. 12 SH)

Ma 140 Anly Geom&Calc I	3			
Ma 141 OR 105 & 107	3			

GROUP 5 SOCIAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

GENERAL EDUCATION ELECTIVES (min. 9 SH/max. 12 SH)

SPECIAL RULES:

1) 090 courses do not count toward graduation.
2) Max. 6 SH in major allowed in G.E. Dist. area.
3) Max. 2 courses with same prefix in GROUPS.
4) Max. 12 SH with same prefix in G.E. Dist. area.
5) One non-major professional elective allowed.

BIOLOGY MAJOR	52 SH	GRADE	QP	DATE
Bio 111 Intro Cell Bio	4			
Bio 210 Zoology	4			
Bio 310 OR 362	3			
Bio 404 Seminar	1			
Chm 211 Organic Chem I	4			
Chm 212 Organic Chem II	4			
Phy 191 Physics I	4			
Phy 192 Physics II	4			
Must Take Two Courses:				
Bio 330 OR 332				
Bio 340 Genetics	3			
Bio 355 Microbiology	3			
BIOLOGY ELECTIVES - 17 OR 18 SH				
FREE ELECTIVES	SH			

Adv. Standing _____

S.H. Credited _____ Required 128 SH

Date										
SH Sched.										
SH Earned										
Qual. Pts.										
G P A										

Bachelor of Arts Program
Recommended Semester Sequence

Freshman Year

First Semester				Second Semester			
CHM	111	Gen Chem I	4	CHM	112	Gen Chem II	4
*MA	140	Calculus I	3	*MA	105	Statistics	3
BIO	111	Intro Cell Bio	4	BIO	220	Botany	4
ENG	112	Comp I	3	#GEN ED		Electives	6
#FINE ARTS		Elective	3				
**HPE	101		1				
			18				17

Sophomore Year

First Semester				Second Semester			
CHM	211	Org Chem I	4	CHM	212	Org Chem I	4
#GEN ED		Elective	3	BIO		Elective	3
BIO	210	Zoology	4	SPC	101	Oral Comm	3
#GEN ED		Elective OR		#GEN ED		Electives	6
MA	107	Intro Comp Prgm	3				
**HPE	100		2				
			16				16

Junior Year

First Semester				Second Semester			
PHY	191	Physics I OR CHM or FREE Elec	4 or 3	BIO		Elective	3
BIO		Elective	3	#GEN ED		Elective	3
#GEN ED		Elective	3	PHY	192	Physics II OR CHM or FREE Elec	4
ENG	313	Comp II	3	#FREE or GEN ED Electives			3
BIO	310	Ecology OR	3	BIO	345	Dev Bio OR	
BIO		Elective		BIO	351	Histology	3
			16/15				16

Senior Year

First Semester				Second Semester			
BIO Electives OR				BIO		Electives	6
Bio 310		Ecology + Elective	6	BIO	404	Seminar	1
FREE		Electives	6	&CHM or FREE Elec or PHY 192			4
&FREE OR CHM Elec OR PHY 191			3 or 4/4	FREE		Elective	3
			15/16				14

* MA 130 may be taken in the first semester if needed as a remedial course, but the student still must complete MA 140 and 141 under math option A, or MA 140, 105 and 107 under option B.

** Students must take 3 credits of HPE. This can be done by taking 3-1 credit physical education courses or HPE 100, Health for 2 credits and a 1-1 credit PE course.

There are five (5) groups of General Ed Courses (Humanities, Languages, Sciences, Mathematics, and Social Sciences). As soon as possible the student must complete 2 courses in 4 of the 5 groups. One group may be eliminated. See the college catalog or this handbook for courses which will fulfill these requirements. ENG 112, 313 and SPC 101 are required but do not fulfill group requirements. ART 101, MUS 100, THT 110 will not fulfill any group requirements but one of them must be taken to complete the Fine Arts requirements.

& A chemistry minor is very good for biology majors and any 2 additional chemistry courses would satisfy. Suggestions are CHM 311, 341 in the fall and 332 in the spring.

EVALUATION RECORD

26.0101
BIOLOGY B.A.
(eff. F-86)

NAME

SOC. SEC. NO. DATE ADMITTED

	SH	GRADE	QP	DATE
Ele 090 Basic Rdg/Stdy	3			
Eng 090 Basic Writing	3			
Ma 090 General Mathematics	3			

GENERAL EDUCATION

COMMUNICATION SKILLS (total 9 SH)

Com 101 Oral Communication	3			
Eng 112 Composition I	3			
Eng 313 Composition II(Min.C)	3			

HEALTH/PHYSICAL EDUCATION (total 3 SH)

HPE 100 Health	2			
HPE 101-151	1			
HPE 101-151	1			
HPE 101-151	1			

FINE ARTS (total 3 SH)

ArH 101 Intro to Art	3			
Mus 100 Intro to Music	3			
Tht 110 Intro to Theatre	3			

DISTRIBUTION REQUIREMENTS (min. 42 SH in 4 Group & Elect.)

GROUP 1 HUMANITIES (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

GROUP 2 FOREIGN LANGUAGES

(min. 6 SH one lang./max. 12 SH)

GROUP 3 NATURAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

Bio 220 Botany	4			
Chm 111 Gen'l Chem I	4			
Chm 112 Gen'l Chem II	4			

GROUP 4 MATHEMATICS (min. 6 SH/max. 12 SH)

Ma 140 Anly Geom&Calc I	3			
Ma 141 OR 105 & 107				

GROUP 5 SOCIAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

GENERAL EDUCATION ELECTIVES (min. 9 SH/max. 12 SH)

Geg 222 EnvirLand Use&Nat Res	3			

SPECIAL RULES:

1) 090 courses do not count toward graduation.
2) Max. 6 SH in major allowed in G.E. Dist. area.
3) Max. 2 courses with same prefix in GROUPS.
4) Max. 12 SH with same prefix in G.E. Dist. area.
5) One non-major professional elective allowed.

ENVIRONMNTL SCI. EMPHASIS	64 SH	GRADE	QP	DATE
Bio 111 Intro Cell Bio	4			
Bio 210 Zoology	4			
Bio 310 Ecology	3			
Bio 362 Limnology	3			
Bio 404 Seminar	1			
Bio/Geg/Gel 465 Sem:Envrn.Sci.	1			
Chm 211 Organic Chem I	4			
Chm 212 Organic Chem II	4			
Phy 191 Physics I	4			
Phy 192 Physics II	4			
Must Take Two Courses:				
Bio 330 OR 332				
Bio 340 Genetics	3			
Bio 355 Microbiology	3			
BIOLOGY ELECTIVES - 13 OR 14 SH				
ENVIRONMNTL SCI. EMPHASIS - 12 SH				
Must Take Two Courses:				
Chm 332 Instrumental Anly	3			
Geg 312 Weather & Climate	3			
Gel 361 Sedimentation	3			
Must Take Two Courses:				
Chm 311 Quantitative Anly	3			
Geg 231 Maps & Mapping	3			
Geg/Gel 372 Aerial Photo Intrp	3			
Gel 102 Environmental Geol	3			
Gel 121 Physical Geology	3			
FREE ELECTIVES	SH			

Adv. Standing _____

S.H. Credited _____ Required 128 SH

Date										
SH Sched.										
SH Earned										
Qual. Pts.										
G P A										

Bachelor of Arts Program
Environmental Science
Recommended Semester Sequence

Freshman Year

First Semester

CHM	111	Gen Chem I	4
*MA	105	Statistics	3
BIO	111	Intro Cell Bio	4
ENG	112	Comp I	3
GEG	222	Envir Land Use	3
			17

Second Semester

CHM	112	Gen Chem II	4
*MA	140	Calculus I	3
BIO	220	Botany	4
#GEN ED		Electives	3
HPE	101	Health	2
			16

Sophomore Year

First Semester

&CHM	211	Org Chem I	4
#GEN ED		Elective	3
BIO	210	Zoology	4
GEG	372	Aerial Photog	3
GEG	312	Weather Climate	
BIO	362	Limnology	3
BIO	310	Ecology	
			17

Second Semester

CHM	212	Org Chem I	4
BIO		Elective	3
SPC	101	Oral Comm	3
#GEN ED		Electives	3
HPE	101	Phys Ed	1
*MA	107	Intro to Comp Pgm	3
			17

Junior Year

First Semester

PHY	191	Physics I OR Gen Ed	4/3
BIO		Elective	3
GEG	312	Weather Climate OR	3
GEG	372	Aerial Photog	
BIO	310	Genetics OR	3/4
CHM	311	Quant. Anal	
BIO	310	Ecology OR	3
BIO	362	Limnology	17/15

Second Semester

BIO	355	Microbiology	3
BIO		Elective	3
PHY	192	Physics II OR	4
BIO	332	Physiology	
ENG	313	Comp II	3
#FINE ARTS		Elective OR	3
GEG	231	Maps & Mapping	
			16

Senior Year

First Semester

BIO		Electives	6
#GEN ED		Electives OR	3/4
PHY	191	Physics	
CHM	311	Quant. Anal OR	3/4
BIO	310	Genetics	
BIO	465	Envi Sci Seminar	1
			16/15

Second Semester

BIO	332	Physiology OR	4
PHY	192	Physics II	
BIO	404	Seminar	1
#GEN ED		Electives	6
CHM	332	Inst Anal OR	3
BIO		Elective OR	
GEG	231	Maps & Mapping	3
FINE ARTS		Elective	
			17/14

* MA 130 may be taken in the first semester if needed as a remedial course, but the student sill must complete MA 140 and 141 under math option A, or MA 140, 105 and 107 under option B. If a student must take MA 090 , the course sequence should be MA 101 then MA 130 then MA 140. Remember MA 140 is prerequisite for PHY 192.

** Students must take 3 credits of HPE. This can be done by taking 3-1 credit physical education courses or HPE 100, Health for 2 credits and a 1 credit PE course.

There are five (5) groups of General Ed Courses (Humanities, Languages, Sciences, Mathematics, and Social Sciences). As soon as possible the student must complete 2 coourses in 4 of the 5 groups. One group may be eliminated. See the college catalog or this handbook for courses which will fulfill these requirements. ENG 112, 313 and SPC 101 are required but do not fulfill group requirements. ART 101, MUS 100, THT 110 will not fulfill any group requirements but one of them must be taken to complete the Fine Arts requirements.

& A minor in chemistry is acquired with this schedule of chemistry courses.

BIOLOGY
Department
Office
Room 128 GSC

Secretary
Roxie Mogush

13.1395
BIOLOGY B.S.E.
(eff. F-87)

EVALUATION RECORD

NAME _____

SOC. SEC. NO. _____ DATE ADMITTED _____

	SH	GRADE	QP	DATE
Ele 090 Basic Rdg/Stdy Skl	3			
Eng 090 Basic Writing Skl	3			
Ma 090 General Mathematics	3			

GENERAL EDUCATION

COMMUNICATION SKILLS (total 9 SH)

Com 101 Oral Communication	3			
Eng 112 Composition I	3			
Eng 313 Composition II(Min.C)	3			

HEALTH/PHYSICAL EDUCATION (total 3 SH)

HPE 100 Health	2			
HPE 101-151	1			
HPE 101-151	1			
HPE 101-151	1			

FINE ARTS (total 3 SH)

ArH 101 Intro to Art	3			
Mus 100 Intro to Music	3			
Tht 110 Intro to Theatre	3			

DISTRIBUTION REQUIREMENTS (min. 42 SH in 4 Group & Elect.)

GROUP 1 HUMANITIES (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

Hst 201 OR 202	3			

GROUP 2 FOREIGN LANGUAGES

(min. 6 SH one lang./max. 12 SH)

GROUP 3 NATURAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

Bio 220 Botany	4			
Chm 111 Gen'l Chem I	4			
Chm 112 Gen'l Chem II	4			

GROUP 4 MATHEMATICS (min. 6 SH/max. 12 SH)

Ma 140 Anly Geom&Calc I	3			
Ma 141 OR 105 & 107	3			

GROUP 5 SOCIAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

Psy 101 Intro Gen'l Psych	3			

GENERAL EDUCATION ELECTIVES (min. 9 SH/max. 12 SH)

Psy 321 Adolescent Psych	3			

SPECIAL RULES:
1) 090 courses do not count toward graduation.
2) Max. 6 SH in major allowed in G.E. Dist. area.
3) Max. 2 courses with same prefix in GROUPS.
4) Max. 12 SH with same prefix in G.E. Dist. area.
5) One non-major professional elective allowed.

BIOLOGY EDUCATION MAJOR	36 SH	GRADE	QP	DATE
Bio 111 Intro Cell Bio	4			
Bio 210 Zoology	4			
Bio 310 OR 362	3			
Bio 404 Seminar	1			
Chm 211 Organic Chem I	4			
Chm 212 Organic Chem II	4			
Phy 191 Physics I	4			
Phy 192 Physics II	4			
Must Take Two Courses:				
Bio 330 OR 332				
Bio 340 Genetics	3			
Bio 355 Microbiology	3			
BIOLOGY ELECTIVES - 1 OR 2 SH				
PROFESSIONAL EDUCATION	32 SH			
Ed 101 Intro to Education	1			
Ed 202 Sec Ed-Pre-Prof Exp	1			
Ed/Psy 230 Educ Psych	3			
Ed 300 Secondary Sch Mtds	3			
Ed 301 Evaluative Tech	2			
Ed 302 Instructional Tech	2			
Ed 310 Basic Rdg Practices	3			
Ed 401 Hist & Phil Educ	3			
Ed 402 Contemp Issues	2			
Ed 400 Student Teaching	12			
FREE ELECTIVES	SH			

Adv. Standing _____

S.H. Credited _____ Required 128 SH

Date										
SH Sched.										
SH Earned										
Qual. Pts.										
G P A										

Bachelor of Science - Fisheries

This B.S. degree program in the Biology Department provides extensive course work in three major areas of fisheries science; aquaculture, fisheries biology, and fisheries management. Unique features of the program include summer internship and field courses and a required independent research project. Cooperative education and research agreements with the U.S. Fish and Wildlife Service National Fishery Research and Development Laboratory and the Pennsylvania Fish Commission are an integral part of the fisheries program at Mansfield University. Graduates of the program meet the requirements for certification as an Associate Fishery Scientist by the American Fisheries Society.

EVALUATION RECORD

03.0302
BIOLOGY:FISHERIES B.S.
(eff. S-87)

NAME

SOC. SEC. NO. DATE ADMITTED

	SH	GRADE	QP	DATE
Ele 090 Basic Rdg/Stdy	3			
Eng 090 Basic Writing	3			
Ma 090 General Mathematics	3			

GENERAL EDUCATION

COMMUNICATION SKILLS (total 9 SH)

Com 101 Oral Communication	3			
Eng 112 Composition I	3			
Eng 313 Composition II(Min.C)	3			

HEALTH/PHYSICAL EDUCATION (total 3 SH)

HPE 100 Health	2			
HPE 101-151	1			
HPE 101-151	1			
HPE 101-151	1			

FINE ARTS (total 3 SH)

ArH 101 Intro to Art	3			
Mus 100 Intro to Music	3			
Tht 110 Intro to Theatre	3			

DISTRIBUTION REQUIREMENTS (min. 42 SH in 4 Group & Elect.)

GROUP 1 HUMANITIES (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

GROUP 2 FOREIGN LANGUAGES

(min. 6 SH one lang./max. 12 SH)

GROUP 3 NATURAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

Bio 220 Botany	4			
Chm 111 Gen'l Chem I	4			
Chm 112 Gen'l Chem II	4			

GROUP 4 MATHEMATICS (min. 6 SH/max. 12 SH)

Ma 105 Intro to Stats	3			
Ma 107 Intro Comptr Prog	3			

GROUP 5 SOCIAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

GENERAL EDUCATION ELECTIVES (min. 9 SH/max. 12 SH)

Ma 140 Anly Geom&Calc I	3			

SPECIAL RULES:
1) 090 courses do not count toward graduation.
2) Max. 6 SH in major allowed in G.E. Dist. area.
3) Max. 2 courses with same prefix in GROUPS.
4) Max. 12 SH with same prefix in G.E. Dist. area.
5) One non-major professional elective allowed.

FISHERIES MAJOR	71 SH	GRADE	QP	DATE
Bio 111 Intro Cell Bio	4			
Bio 210 Zoology	4			
Bio 310 Ecology	3			
Bio 340 Genetics	3			
Bio 355 Microbiology	3			
Bio 360 Ichthyology	3			
Bio 362 Limnology	3			
Bio 404 Seminar	1			
Bio 450 Internship	10			
Bio 460 Aquaculture Rsrch	2			
Bio 461 Mgmt Small Impnds	3			
Bio 462 Mgmt Large Impnds	3			
BFC 213 Fish Culture I	3			
BFC 214 Fish Culture II	3			
BFC 215 Fish Pathology	3			
BFC 217 Fish Management	3			
BFC 218 Lit Review & Report	1			
BFC 404 Seminar	1			
Chm 311 Quantitative Anly	4			
Chm 332 Instrumental Anly	3			
Phy 191 Physics I	4			
Phy 192 Physics II	4			
FREE ELECTIVES				

Adv. Standing _____

S.H. Credited _____ Required 128 SH

Date										
SH Sched.										
SH Earned										
Qual. Pts.										
G P A										

Recommended Semester Sequence

Freshman Year

First Semester

BIO	210	Zoology	4
CHM	111	Gen Chem I	4
*MA	140	Calculus I	3
BFC	213	Fish Cult I	3
			14

Second Semester

CHM	112	Gen Chem II	4
*MA	105	Intro Stats	3
General Ed			4
BFC	214	Fish Cult II	3
			14

Sophomore Year

First Semester

Bio	111	Cell Biology	4
Bio	362	Limnology	3
*MA	107	Intro Comp Prgm	3
General Ed			3
			13

Second Semester

Bio	360	Ichthyology	3
BFC	218	Lit Reports	1
BIO	355	Microbiology	3
General Ed			4
			11

Junior Year

First Semester

BFC	215	Fish Pathology	3
BIO	460	Aqua Res	2
BIO	340	Genetics	3
#General Ed			6
			14

Second Semester

BIO	220	Botany	4
BFC	217	Fish Management	3
BFC	404	Seminar	1
General Ed			6
			14

Summer I

BIO	450	Internship	10
	or		
Bio	461	Mgt Sm Impdmts	3
Bio	462	Mgt Lg Impdmts	3

Senior Year

First Semester

CHM	311	Quant Anal	4
PHY	191	Gen Physics I	4
General Ed			5
Bio	404	Seminar	1
			14

Second Semester

CHM	332	Inst. Anal	3
PHY	192	Gen. Physics II	4
BIO	310	Ecology	3
#GEN ED		Electives	4
			14

Summer II

BIO	461	Mgmt Sm Impmts	3
BIO	462	Mgmt Lg Impmts	3
		or	
BIO	450	Internship	10

TOTAL CREDITS 133

* MA 130 may be taken in the first semester if needed as a remedial course, but the student still must complete MA 140 and 141 under math option A, or MA 140, 105 and 107 under option B. If a student must take MA 090, the course sequence should be MA 101 then MA 130, then MA 140. Remember MA 140 is a prerequisite for PHY 192.

** Students must take 3 credits of HPE. This can be done by taking 3-1 credit physical education courses or HPE 100, Health for 2 credits and a 1-1 credit PE course.

There are five (5) groups of General Ed Coruses (Humanities, Languages, Sciences, Mathematics, and Social Sciences). As soon as possible the student must complete 2 courses in 4 of the 5 groups. One group may be eliminated. See the college catalog or this handbook for courses which will fulfill these requirements. ENG 112, 313 and SPC 101 are required but do not fulfill group requirements. ART 101, MUS 100, THT 110 will not fulfill any group requirements but one of them must be taken to complete the Fine Arts requirements.

& With a year of organic chemistry, the Fisheries major will have a minor in Chemistry.

Bachelor of Science - Medical Technology

Characteristics of Program:

The Medical Technology Curriculum is designed for capable and qualified students interested in a paramedical career. It consists of three years of study in general education, chemistry, biology, physics and mathematics at Mansfield University followed by one year (50 weeks) of clinical study at an approved hospital school of medical technology. The student must apply to, and be accepted by, the hospital for the year of clinical study. The minimum requirements for graduation are distributed as follows:

1) General Education 62 hours including mathematics (9 hours), chemistry (8 hours) and biology (4 hours).

2) Field of specialization divided between credits obtained at university and hospital.

a) University

1.	Additional chemistry	12 hours
2.	Biology	18 hours
3.	Physics	4 hours
		34 hours

b) Hospital

1.	Clinical Study	32 hours

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MEDICAL TECHNOLOGY B.S.
(eff. F-86)

EVALUATION RECORD

NAME _____

SOC. SEC. NO. _____ DATE ADMITTED _____

	SH	GRADE	QP	DATE
Ele 090 Basic Rdg/Stdy	3			
Eng 090 Basic Writing	3			
Ma 090 General Mathematics	3			

GENERAL EDUCATION

COMMUNICATION SKILLS (total 9 SH)

Com 101 Oral Communication	3			
Eng 112 Composition I	3			
Eng 313 Composition II(Min.C)	3			

HEALTH/PHYSICAL EDUCATION (total 3 SH)

HPE 100 Health	2			
HPE 101-151	1			
HPE 101-151	1			
HPE 101-151	1			

FINE ARTS (total 3 SH)

ArH 101 Intro to Art	3			
Mus 100 Intro to Music	3			
Tht 110 Intro to Theatre	3			

DISTRIBUTION REQUIREMENTS (min. 42 SH in 4 Group & Elect.)

GROUP 1 HUMANITIES (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

GROUP 2 FOREIGN LANGUAGES

(min. 6 SH one lang./max. 12 SH)

GROUP 3 NATURAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

Bio 210 Zoology	4			
Chm 111 Gen'l Chem I	4			
Chm 112 Gen'l Chem II	4			

GROUP 4 MATHEMATICS (min. 6 SH/max. 12 SH)

Ma 140 Anly Geom&Calc I	3			
Ma	3			

GROUP 5 SOCIAL SCIENCE (min. 9 SH/max. 18 SH)

Approved Courses - 9 SH

GENERAL EDUCATION ELECTIVES (min. 9 SH/max. 12 SH)

MEDICAL TECHNOLOGY MAJOR	66 SH	GRADE	QP	DATE
Bio 111 Intro Cell Bio	4			
Bio 332 Physiology	4			
Bio 340 Genetics	3			
Bio 355 Microbiology	3			
Bio 380 Immunology	3			
Bio	1			
Chm 211 Organic Chem I	4			
Chm 212 Organic Chem II	4			
Chm 311 Quantitative Anly	4			
Phy 191 Physics I	4			
CLINICAL EDUCATION - 32 SH (Off campus)				
FREE ELECTIVES	SH			

Adv. Standing _____

S.H. Credited _____ Required 128 SH

Date										
SH Sched.										
SH Earned										
Qual. Pts.										
G P A										

SPECIAL RULES:

1) 090 courses do not count toward graduation.
2) Max. 6 SH in major allowed in G.E. Dist. area.
3) Max. 2 courses with same prefix in GROUPS.
4) Max. 12 SH with same prefix in G.E. Dist. area.
5) One non-major professional elective allowed.

Recommended Semester Sequence

Freshman Year

First Semester				Second Semester			
CHM	111	Gen Chem I	4	CHM	112	Gen Chem II	4
*MA	140	Calculus I	3	*MA	107	Intro Comp Prgm	3
BIO	111	Intro Cell Bio	4	SPC	101	Oral Comm	3
ENG	112	Comp I	3	#GEN ED		Electives	6
#Fine Arts		Elective	3	**HPE	101		1
			17				17

Sophomore Year

First Semester					Second Semester				
CHM	211	Org Chem I	OR	4	CHM	212	Org Chem I	OR	4
PHY	191	Physics I	OR			PHY	192 Physics II		
BIO	210	Zoology		4	BIO	332	Gen'l Physiology	OR	4
*PSY	100	Gen Psych	OR	3/4	CHM	332	Inst Chem		3
CHM	311	Quant Anal			#GEN ED		Electives		6
MA	105	Intro Stat		3	PHL	201	Intro to Phil		3
**HPE	100	Health		2					
				16/17					17/16

Junior Year

First Semester					Second Semester				
PHY	191	Physics I	OR	4	BIO	355	Microbiology		3
CHM	211	Organic Chem			#GEN ED		Elective		3
#CHM	311	Quant Anal	OR	4/3	PHY	192	Physics II	OR	4
PSY	100	Gen Psyh			CHM	212	Organic Chem		
ENG	313	Comp II		3	BIO	380	Immunology		3
BIO	340	Genetics		3	CHM	332	Inst Chem	OR	3
BIO		Elective		1	BIO	332	Gen Physiology		4
				16/15					16/17

Senior Year

Clinical Year at Hospital		& Senior Year for Liberal Arts		
Microbiology (clinical)	8	PHY 192	Physics II	4
Clinical Microscopy	3	BIO 404	Seminar	1
Clinical Chemistry	8	BIO 310	Ecology OR	3
Hematology	8	BIO 362	Limnology	
Serology	4	Biology & Free ELectives		24
Histological Techniques	1			
	32			32

& If a student decides to change curriculum or is not accepted by a hospital School of Medical Technology, they may complete the fourth year at the university as indicated and receive the B.A. degree in biology.

* MA 130 may be taken in the first semester if needed as a remedial course, but the student still must complete MA 140 and 141 under math option A or MA 140, 105 and 107 under option B. If a student must take MA 090, the course sequence should be MA 101 then MA 130 then MA 140. Remember MA 140 is prerequisite for PHY 192.

** Students must take 3 credits of HPE. This can be done by taking 3-1 credit physical education courses or HPE 100. Health for 2 credits and a 1 credit PE course.

There are five (5) groups of General Ed Courses (Humanities, Languages, Sciences, Mathematics, and Social Sciences). As soon as possible the student must complete 2 courses in 4 of the 5 groups. One group may be eliminated. See the college catalog or this handbook for courses which will fulfill these requirements. ENG 112, 313 and SPC 101 are required but do not fulfill groups requirements. ART 101, MUS 100, THT 110 will not fulfill any group requirements but one of these must be taken to complete the Fine Arts requirements.

Statement of Understanding Medical Technology Curriculum

The medical technology curriculum at Mansfield University is basically the same as the biology curriculum except that students in medical technology spend only three (3) years at Mansfield. The fourth year is spent at an approved hospital School of Medical Technology. During the three (preclinical) years at Mansfield, the student completes course work in general education, chemistry, biology, physics and mathematics for minimum total of 96 semester hours. For completion of the fourth Medical Technology. Mansfield is affiliated with Robert Packer Hospital, Sayre, PA. All eligible students make applications to this hospital. Students may also apply to other non-affiliated hospitals that have approved AMA Schools of Medical Technology. It should be understood by all students in the medical technology curriculum that acceptance by a hospital for completion of the clinical year is not guaranteed. The hospitals, through their selection procedures, choose the best qualified students. Selection is based on overall academic performance and achievement, letters of recommendation and a personal interview. Upon successful completion of all phases of the program, 32 credits are transferred from the hospital to the university and the student receives a baccalaureate degree. The department of biology is aware that some students making application to the hospitals will not be selected and therefore have designed the biology course of study so that these students may transfer to the liberal arts curriculum, complete the necessary course work during the fourth year, and receive the B.A. degree in biology.

The above statement is written so as to avoid misunderstanding and to clarify the characteristics of the medical technology program at Mansfield University.

_____ _____

Chairman, Biology Department Date

I have read the above statement and fully understand the nature and characteristics of the medical technology program.

_____ _____

Student Date

MINOR IN BIOLOGY

The minor in biology is designed to broaden and expand the knowledge of students especially those in biology related curricula. The requirements for a minor are a total of at least 20 hours of semester credit. The student must take the following courses: Bio 111, 210 and 220. The additional courses to complete the minor can be selected from and BFC or BIO 200, 300 or 400 level course.

Departmental Course Offerings

	#	Title	Credits	Semester	Frequency	Instructor
	101*	Man and the Biological World	4	Fall/Spr/Sum	annual	Staff
	102*	Contemporary Problems in Bio	3	Fall/Spr/Sum	annual	Staff
	103*	Human Anatomy	4	Fall	annual	Becker
	104*	Human Physiology	3	Fall	annual	Becker
	111	Introduction to Cell Biology	4	Fall	annual	Flesch
	121**	Human Anatomy and Physiology I	4	Fall	annual	Becker
	122**	Human Anatomy and Physiology II	4	Spring	annual	Maris
	210	Zoology	4	Fall	annual	Smichowski
BFC	213@	Fish Culture I	3	Fall	annual	Soderberg
BFC	214@	Fish Culture II	3	Spring	annual	Soderberg
BFC	215%	Fish Pathology	3	Fall	biann(odd)	Soderberg
BFC	217%	Fish Management	3	Spring	biann(odd)	Soderberg
BFC	218@	Fisheries Literature Review	1	Spring	annual	Garretson
	220	Botany	4	Spring	annual	Meyer
	250	Marine Biology	3	Fall	biann(odd)	Meyer
	251	Tropical Marine Biology	1	Spring	irregular	Meyer
	260	Field Methods in Environ. Biology	3	Summer	irregular	Staff
	309	Epidemiology	3	Fall	biann(odd)	Honeywell
	310	Ecology	3	Fall	biann(even)	Meyer
	325	Entomology	3	Fall	biann(odd)	Smichowski
	330	Plant Physiology	3	Fall	biann(odd)	Flesch
	331	Vertebrate Anatomy	3	Fall	biann(even)	Honeywell
	332	Physiology	4	Spring	annual	Becker
	340	Genetics	3	Spring	annual	Flesch
	345	Developmental Biology	3	Spring	biann(even)	Flesch
	351	Animal Histology & Microtechniques	3	Spring	biann(odd)	Flesch
	355	Microbiology	3	Spring	annual	Goff
	360	Ichthyology	3	Spring	biann(odd)	Smichowski
	362	Limnology	3	Fall	biann(odd)	Meyer
	380	Immunology	3	Spring	annual	Honeywell
	401	Bio Statistics & Exper. Design	3	Spring	irregular	Soderberg
	404	Seminar	1	Fall/Spring	annual	Staff
BFC	404	Seminar	1	Spring	biann(odd)	Staff
	444	Molecular Biology	3	Spring	biann(even)	Flesch
	450	Internship	1-12	Summer	annual	Soderberg
	460	Aquaculture Research	1-3	Fall	annual	Soderberg
	461	Management of Small Impoundments	3	Summer	biann(even)	Soderberg
	462	Management of Streams & Lg. Impd.	3	Summer	biann(even)	Soderberg
	465	Seminar in Environ. Sci.	1		irregular	Meyer
	482	Cell Physiology	3	Spring	biann(odd)	Flesch
	497	Independent Study	1-3	Fall/Spr/Sum	annual	Staff

* may not be taken by Biology majors for biology credit
** may be taken by Allied Health students only and may NOT be taken by Biology majors for credit
@ may be taken by Fisheries majors only
% may be taken by any bioloy major with departmental permission

BIOLOGY FACULTY RESEARCH INTERESTS

Anthony J. Becker, Jr. B.S., M.S., Ph.D. respiratory physiology of aquatic organisms, neural mechanisms of animal behavior evolutionary processes	Physiology
David C. Flesch. B.S., Ph.D. plant cell wall biosynthesis and formation cell membrane fusion mechanisms	Cell Biology
Ralph C. Goff. B.S., Ph.D. bacterial metabolism	Microbiology
Lawrence R. Honeywell. B.S., V.M.D. fish immunology vertebrate enzymology animal pathology	Immunology
Robert C. Maris, B.S., M.S., Ph.D. zooplankton ecology crustacean biology vertical distribution dispersal/recruitment	Marine Ecology
James W. Meade. B.S., M.S., Ph.D. (Adjunct) toxicology of salmonid fishes limiting factors in fishery production	Fish Culture
Kenneth A. Meyer. B.A., M.A., Ph.D. water pollution control water quality evaluation	Ecology
Vincent P. Smichowski. B.S., M.Ed., D.Ed. population dynamics of stream insects shark behavior	Zoology
Richard W. Soderberg, B.S., M.S., Ph.D. fisheries population dynamics small impoundment management fish histopathology	Fish Management
Lois Vore, B.A., M.S. food microbiology	Microbiology